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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL WEILAND, GREGORY NYCZAK,
WILLIAM MCDONOUGH, MICHAEL TSENGOURAS,
DAVID SHUMAN, and PAUL FORD

Appeal 2009-006031
Application 10/620,732
Technology Center 3600

Before MURRIEL E. CRAWFORD, BIBHU R. MOHANTY, and
STEPHEN C. SIU, *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*.

DECISION ON APPEAL¹

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-12 and 14-21. Claim 13 has been cancelled. We have jurisdiction under 35 U.S.C. § 6(b).²

The Invention

The disclosed invention relates generally to representing road lanes as data in a database (Spec. 2).

Independent claim 1 is illustrative:

1. A method for representing lanes with a road database comprising: storing in the road database data representations of physical road lanes; and associating with each data representation of a physical road lane
 - data indicating start and end points of the represented physical road lane; and
 - data indicating what linearly extending physical features are adjacent to and extend along the represented physical road land on a right side and a left side thereof.

The Reference

The Examiner relies upon the following reference as evidence in support of the rejections:

Tamai

US 5,902,350

May 11, 1999

² Appellants waived appearance at an oral hearing scheduled for this appeal on July 5, 2010. See Communication filed July 6, 2010.

The Rejection

The Examiner rejects claims 1-12 and 14-21 under 35 U.S.C. § 102(b) as being anticipated by Tamai.

ISSUE 1

Appellants assert that “Tamai fails to disclose” limitations of claim 1 (App. Br. 4).

Did the Examiner err in finding that Tamai discloses limitations recited in claim 1?

ISSUE 2

Appellants assert that “Tamai has no disclosure whatsoever about whether a physical road lane can be entered by a ‘lane change’ from another lane” (App. Br. 8).

Did the Examiner err in finding that Tamai discloses data indicating that one road lane can be entered by a lane change from another road lane?

ISSUE 3

Appellants assert that “Tamai has no disclosure about whether a physical road lane of less than full width is present or where such a lane might become a lane of full width” (App. Br. 10).

Did the Examiner err in finding that Tamai discloses data indicating a road lane cannot be entered by a lane change from another road lane?

ISSUE 4

Appellants assert that “Tamai has no disclosure about whether a physical road lane of less than full width is present or where such a lane might end” (App. Br. 11).

Did the Examiner err in finding that Tamai discloses data indicating a road lane of full width, a road lane of less than full width, a road lane of less than full width that becomes a full width lane, and a road lane of less than full width that ends entirely immediately ahead?

ISSUE 5

Appellants assert that “Tamai has no disclosure about ‘*shoulders*’” (App. Br. 12).

Did the Examiner err in finding that Tamai discloses data indicating a shoulder?

ISSUE 6

Appellants assert that “Tamai has no disclosure about whether ‘*surfaces*’ located adjacent to lanes are ‘*drivable*’” (App. Br. 12) or data that indicates “*that no drivable surface is located adjacent to*” a road lane (App. Br. 13).

Did the Examiner err in finding that Tamai discloses data indicating a drivable surface adjacent to a road lane?

ISSUE 7

Appellants argue generally that Tamai fails to disclose data indicating “whether surfaces located adjacent to lanes are ‘*drivable*’” (App. Br. 13).

Did the Examiner err in finding that Tamai discloses data indicating that no drivable surface is located adjacent to a road lane?

ISSUE 8

Appellants assert that Tamai fails to disclose “*sublanes*” (App. Br. 14) or “*multiple sublanes*” (App. Br. 15).

Did the Examiner err in finding that Tamai discloses data indicating multiple sublanes and a sublane with start and end points?

ISSUE 9

Appellants assert that “Tamai also fails to disclose the limitations . . . that relate to ‘*multiple sublanes*’ that ‘*overlap*’” (App. Br. 15, 21).

Did the Examiner err in finding that Tamai discloses that some sublanes overlap?

ISSUE 10

Appellants assert that “Tamai likewise fails to disclose anything about representing the ‘*geometry*’ of a ‘*physical road lane*’” (App. Br. 16).

Did the Examiner err in finding that Tamai discloses data indicating geometry of a road lane?

ISSUE 11

Appellants assert that “Tamai has no disclosure about ‘*splines*’” (App. Br. 17).

Did the Examiner err in finding that Tamai discloses a spline?

ISSUE 12

Appellants assert that “Tamai has no disclosure about a ‘*reference*’ between a ‘*data representation of a physical road lane*’ and a ‘*data entity used for navigation-related purposes that represents the road segment of which the physical road lane is a part*’” (App. Br. 17).

Did the Examiner err in finding that Tamai discloses a reference to data used for navigation-related purposes that represents a road segment?

FINDINGS OF FACT

The following Findings of Facts (FF) are shown by a preponderance of the evidence.

1. Tamai discloses “a representation of an intersection 10 comprising cross-streets” (col. 2, ll. 5-6) in which the “intersection 10 is represented in the map database” (col. 2, l. 10).
2. Tamai discloses that the
map database . . . comprises positional data such as, for example, latitude and longitude coordinates, for describing road intersections, road segments, landmarks and points of interest, and other geographical information. The data base further comprises road attribute data identifying characteristics of roads

or places on the map, including, but not limited to, road and place names; road features such as dividers, one-way restrictions, surface, speed limit, shape, elevation; and road classifiers such as freeway, expressway, artery, street, access, and connector, for example. Given a source and a destination, the vehicle navigation system uses the map database to generate a route to the destination and to provide maneuver indications directing the driver to the desired destination.

(Col. 5, ll. 42-55).

3. Tamai discloses “determining whether the intersection includes a turn-lane connector” and “retrieves from a map database . . . the positional data and road attribute data for the road segments comprising the intersection” (col. 6, ll. 29-34).
4. The Specification discloses that “[i]f two lanes split, an attribute may be included that indicates that these lanes overlap” and that overlapping lanes “are modeled such that their centerlines start at the same point” (Spec. 10, ll. 6-8).

PRINCIPLES OF LAW

35 U.S.C. § 102

In rejecting claims under 35 U.S.C. § 102, “[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citation omitted).

ANALYSIS

Issue 1

Based on Appellants' arguments in the Appeal Brief, we will decide the appeal of issue 1 on the basis of claim 1 alone. *See* 37 C.F.R.

§ 41.37(c)(1)(vii).

We are not persuaded that the Examiner erred in asserting that Tamai discloses a road database that stores data representations of physical road lanes. Appellants argue that Tamai “stores data that represent road segments . . . and not the lanes that make up road segments” (App. Br. 7). However, as described above, Tamai discloses roads (including lanes, *e.g.*, Fig. 1a) and storing data representing the roads in a map database. Since the data stored in the map database of Tamai represents the roads and the lanes the make up the road, we disagree with Appellants' contention that Tamai supposedly fails to disclose data that represents roads or the lanes that make up the roads.

Appellants also argue that “Tamai fails to disclose that the database . . . contains information that indicates what is adjacent to and extends along a represented physical road segment” (App. Br. 8). However, Appellants fail to demonstrate that Tamai's disclosure of data in the database describing “landmarks and points of interest, and other geographical information” or “road features such as dividers,” for example, differs from data describing (or representing) elements that are adjacent to and extend along a road. Since elements such as landmarks, points of interest, or road dividers are

adjacent to roads and extend along roads, we agree with the Examiner that Tamai discloses this claimed feature.

For at least the aforementioned reasons, we find no error in the Examiner's rejection of claim 1, and claims 2-12 and 14-21, which fall therewith, with respect to issue 1.

Issue 2

We are not persuaded that the Examiner erred in asserting that Tamai discloses data indicating that one road lane can be entered by a lane change from another road lane.

The Examiner finds that Tamai discloses a "left turn lane [that] can be entered by a lane change from the road" (Ans. 8). Tamai discloses a left turn lane that is represented by "a connector 30' corresponding to turn lane 30" (col. 2, ll. 50-51) and "a double maneuver . . . for a left turn from N/S street 24 onto abutting street 26" via the connector 30' (col. 2, ll. 52-54). Thus, Tamai discloses maneuvering a vehicle from one lane (e.g., "N/S street") to another lane (e.g., connector 30'), both of which are represented by data in the map database. We find no discernible difference between the Tamai disclosure and the disputed claim limitation.

Appellants argue that Tamai fails to disclose "a '*lane change*' from another lane" (App. Br. 8) but fail to indicate any difference between changing lanes as recited in claim 2 and "maneuvering" a vehicle from one lane to another, as disclosed by Tamai. Since we find no difference and

Appellants have not asserted any specific differences, we agree with the Examiner.

For at least the aforementioned reasons, we find no error in the Examiner's rejection of claim 2 with respect to issue 2.

Issue 3

We are not persuaded that the Examiner erred in asserting that Tamai discloses data indicating a road lane cannot be entered by a lane change from another road lane. Tamai discloses a map database that includes data identifying "one-way restrictions" (col. 5, ll. 48-49). Since a "one-way restriction" indicates that a lane (which is one-way) may not be entered (i.e., "restricted") in the wrong direction, we agree with the Examiner that Tamai discloses data indicating a lane may not be entered.

Appellants argue that Tamai fails to disclose "a '*lane change*' from another lane" (App. Br. 9). We disagree with Appellants' assertion because, as described above, we find that Tamai discloses maneuvering a vehicle from one lane to another, which involves change from one lane to another, as well as restricting maneuvering a vehicle onto a lane with a one-way restriction. Appellants fail to provide arguments distinguishing the disclosure of Tamai and the disputed claim feature.

For at least the aforementioned reasons, we find no error in the Examiner's rejection of claim 3.

Issue 4

Appellants also argue that “Tamai . . . fails to disclose representing ‘lanes that are less than full width’ or ‘lanes of full width’” (App. Br. 18, 22). We are not persuaded that the Examiner erred in asserting that Tamai discloses data indicating a road lane of less than full width that becomes a lane of full width ahead in a direction of travel and that a lane of full width ends entirely ahead in a direction of travel. Tamai discloses a “turn lane 30” (col. 2, l. 51) that is represented by data in a database (i.e., data indicating “a connector 30’ corresponding to the turn lane 30” (col. 2, ll. 50-51)). The turn lane initially has a width of “0” (no turn lane), which is “less than full width,” and is represented as such by data in the map database. When the turn lane appears, data representing the connector indicates a left turn lane of full width (*see, e.g.*, Fig. 2a and Fig. 2b). Tamai also discloses data representing a left turn from the turn lane 30 (*see, e.g.*, col. 2, ll. 51-54) onto an “abutting street 26,” thus indicating that the left turn lane 30 “ends entirely” since the left turn lane would not be present after a left turn has been completed. We therefore agree with the Examiner that Tamai discloses lanes of less than full width and lanes of full width.

Appellants also argue that “Tamai has no disclosure about whether a physical road lane of less than full width is present or where such a lane might become a lane of full width” (App. Br. 10) or “where a lane might end” (App. Br. 11). As described above, we find that Tamai does in fact disclose data representing a lane (i.e., left turn lane) of less than full width (i.e., “0” width prior to arriving at the intersection) and that comes to an end

(after the left turn is made). Tamai also discloses, as described above, data indicating that the left turn lane becomes a full width, the left turn lane appearing “immediately ahead in a direction of travel” of the lane and also ending ahead in the direction of travel (after the left turn is made). We are unpersuaded by Appellants’ further argument that Tamai supposedly fails to disclose “where such a lane might become a lane of full width” or “where a lane might end” since neither claim 4 nor claim 5 recites specifically “where” a lane becomes full width or ends other than “immediately ahead” in the direction of travel. Since Tamai discloses the left turn lane “immediately ahead” in a direction of travel and Appellants fail to demonstrate a difference between the Tamai disclosure and the disputed claim features, we agree with the Examiner.

For at least the aforementioned reasons, we find no error in the Examiner’s rejection of claims 4, 5, 16, and 21 with respect to issue 4.

Issue 5

The Examiner finds that Tamai discloses “a shoulder located adjacent to the road (62) (figure 11a)” (Ans. 9). While we agree with the Examiner that Tamai illustrates an intersection of two streets, we do not find, and the Examiner has not pointed out where Tamai discloses a shoulder or data representing the shoulder.

Accordingly, we conclude that the Examiner erred in rejecting claim 6.

Issue 6

We are not persuaded that the Examiner erred in asserting that Tamai discloses data indicating a drivable surface located adjacent to a road lane. As described above, Tamai discloses data representing a left turn lane, which is a drivable surface adjacent to a road lane. While Appellants argue generally that Tamai supposedly fails to disclose a drivable surface adjacent to a road lane (App. Br. 12), Appellants fail to provide arguments demonstrating any specific differences between the Tamai disclosure of, for example, a left turn lane, and the claimed feature of a drivable surface adjacent to a road lane.

For at least the aforementioned reasons, we find no error in the Examiner's rejection of claim 7 with respect to issue 6.

Issue 7

The Examiner finds that Tamai discloses "the median (44) is a no drivable surface located adjacent to the road (38)" (Ans. 9). Tamai also discloses that the map database contains data indicating "road features such as dividers" (col. 5, l. 48). Since a median or a divider is not a drivable surface and both are represented by data in a database of Tamai, we agree with the Examiner that Tamai discloses the disputed features.

While Appellants argue generally that Tamai fails to disclose data indicating "whether surfaces located adjacent to lanes are 'drivable'" (App. Br. 13), Appellants fail to provide arguments demonstrating any specific differences between Tamai and the disputed claim limitations.

For at least the aforementioned reasons, we find no error in the Examiner's rejection of claim 8 with respect to issue 7.

Issue 8

We are not persuaded that the Examiner erred in asserting that Tamai discloses data indicating multiple sublanes or a sublane with start and end points relative to a road lane of which the sublane is a part.

The Examiner finds that Tamai discloses "a sublane of road lane" such that "figure 2a includes a left turn lane, and figure 11a includes a right turn lane" (Ans. 9) that "comprises start and end points" (Ans. 9). Tamai also discloses a database storing data representing "road segments" (col. 5, l. 45). Appellants have not provided an explicit definition of the term "sublane." We therefore construe the term broadly but reasonably and in light of the Specification to include any road segment with at least one lane that is associated with another road segment or lane. As the Examiner indicates, Tamai discloses a left turn lane (*see, e.g.*, Fig. 2a and corresponding Fig. 2b) and a right turn lane (Fig. 11a) that have start and end points (*i.e.*, the lanes begin and end) that are represented by data in a database. The left turn and right turn lanes are associated with the road lane. In addition, Tamai discloses other lanes within a road segment that are not associated with right or left turns (*e.g.*, Fig. 1a) and corresponding data in a database that represents those lanes (*e.g.*, Fig. 1b). We therefore agree with the Examiner that the left turn lane and the right turn lane of Tamai or lanes not associated with right or left turns correspond to "multiple sublanes" or a

“sublane” as a portion of a road segment. Hence, we disagree with Appellants contention that Tamai fails to disclose a sublane, multiple sublanes, or data representing the sublane or multiple sublanes and the start and end of the sublane(s).

While Appellants argue generally that Tamai supposedly fails to disclose sublanes or start and end points of a sublane (App. Br. 14-15 and 19-20), Appellants fail to provide arguments demonstrating any specific differences between Tamai and the disputed claim features.

For at least the aforementioned reasons, we find no error in the Examiner’s rejection of claims 9, 10, and 17-19 with respect to issue 8.

Issue 9

We are not persuaded that the Examiner erred in asserting that Tamai discloses data indicating sublanes that overlap.

As set forth above, we agree with the Examiner that Tamai discloses sublanes. Appellants argue that Tamai supposedly fails to disclose multiple sublanes that overlap because “Tamai has no disclosure about ‘*sublanes*’ or ‘*multiple sublanes*’” (App. Br. 15). Since we find that Tamai does in fact disclose sublanes and multiple sublanes, we cannot agree with Appellants’ argument.

In addition, Tamai discloses lanes for which centerlines start at the same point. For example, Fig. 1a of Tamai illustrates one branch of a North-South road segment extending North from an intersection with an East-West road segment that extends West from the intersection such that both road

segments start at the same (center) point at the intersection. The Specification discloses that roads that “overlap” have “their centerlines start at the same point” (FF 4), which describes the road segments of Tamai.

For at least the aforementioned reasons, we find no error in the Examiner’s rejection of claims 11 and 20 with respect to issue 9.

Issue 10

We are not persuaded that the Examiner erred in asserting that Tamai discloses data indicating a geometry of the represented physical road lane. Appellants argue that Tamai fails to disclose data geometry of the represented physical road lane because “Tamai has no disclosure about representing physical road lanes” (App. Br. 16). As described above, we agree with the Examiner that Tamai discloses data representing road lanes. Therefore, we are unpersuaded by Appellants’ argument.

For at least the aforementioned reasons, we find no error in the Examiner’s rejection of claim 12 with respect to issue 10.

Issue 11

The Examiner finds that Tamai discloses “a geometry of the road (24), wherein the geometry is represented using a spline” (Ans. 6) but does not demonstrate where in the Tamai reference a “spline” is disclosed as being used to create the depicted “geometry” of the road or that only a spline could be used to create the representation of the road as disclosed in Tamai. In fact, the Examiner has not demonstrated that Tamai actually discloses a

“spline” at all. Therefore, we cannot agree that Tamai discloses each limitation of the claim.

Accordingly, we conclude that the Examiner erred in rejecting claim 14.

Issue 12

We are not persuaded that the Examiner erred in asserting that Tamai discloses a reference to a data entity used for navigation-related purposes that represents the road segment of which the physical road lane is a part.

Appellants generally argue that “Tamai has no disclosure about a ‘reference’ between a ‘*data representation of a physical road lane*’ and a ‘*data entity used for navigation-related purposes that represents the road segment of which the physical road lane is a part*’” because Tamai “does [not] include data that represents road lanes that make up the road segments” (App. Br. 17). As set forth above, we find that Tamai does in fact disclose data the represents road lanes. Therefore, we are unpersuaded by Appellants’ argument.

For at least the aforementioned reasons, we find no error in the Examiner’s rejection of claim 15 with respect to issue 12.

CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that the Examiner did not err in:

1. finding that Tamai discloses limitations recited in claim 1 (issue 1);
2. finding that Tamai discloses data indicating that one road lane can be entered by a lane change from another road lane (issue 2);
3. finding that Tamai discloses data indicating a road lane cannot be entered by a lane change from another road lane (issue 3);
4. finding that Tamai discloses data indicating a road lane of full width, a road lane of less than full width, a road lane of less than full width that becomes a full width lane, and a road lane of less than full width that ends entirely immediately ahead (issue 4);
5. finding that Tamai discloses data indicating a drivable surface adjacent to a road lane (issue 6);
6. finding that Tamai discloses data indicating that no drivable surface is located adjacent to a road lane (issue 7);
7. finding that Tamai discloses data indicating multiple sublanes and a sublane with start and end points (issue 8);
8. finding that Tamai discloses that some sublanes overlap (issue 9);
9. finding that Tamai discloses data indicating geometry of a road lane (issue 10); and

10. finding that Tamai discloses a reference to data used for navigation-related purposes that represents a road segment (issue 12).

However, we also conclude that the Examiner erred in finding that Tamai discloses data indicating a shoulder (issue 5) and finding that Tamai discloses a spline (issue 11).

DECISION

We affirm the Examiner's decision rejecting claims 1-5, 7-12, and 15-21 under 35 U.S.C. § 102(b). We reverse the Examiner's decision rejecting claims 6 and 14 under 35 U.S.C. § 102(b).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

msc

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